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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,373	08/30/2000	Bjorn Heed		2764

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Orum & Roth
53 West Jackson Boulevard
Chicago, IL 60604-3606

EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/623,373

Applicant(s)

HEED, BJORN

Examiner

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005 and 11 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7 and 9-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7 and 9-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “duct adapted to supply agents” (claims 3, 6, 13, 15); “a supply interrupt mechanism” (claims 4, 7, 14) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “12” (page 3, line 22) has been used to designate both “the hot zone” and “the intermediate zone”. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are

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required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "14" and "12" have both been used to designate "the intermediate zone" (page 3, line 22). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure (the substitute specification filed 4/11/05) is objected to because of the following informalities:

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On page 2, lines 36 to page 3, line 1, it is unclear as to what applicant is attempting to recite, apparently "figure 1" should be changed to --figure 2-- and "figure 2" should be changed to --figure 1--.

On page 3, line 5 --separated is misspelled; in line 7 "not" should be changed to --not--; in line 9 "hotzone" should be changed to --hot zone--; in line 22 --portion-- and --intermediate-- are misspelled.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-4, 6-7, 9-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 1, it is unclear as to what defines the zones and where the intermediate zone is disclosed in the original specification. See claims 2, 16-17 likewise.

In claim 3, it is unclear as to where the "duct" is disclosed in the original specification. See claims 6, 13, 15 likewise

In claim 4, it is unclear as to where the "supply interrupt mechanism" is disclosed in the original specification. See claims 7, 14 likewise.

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In claims 9-12, 15, it is unclear as to where it is disclosed in the original specification.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4, 6-7, 9-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear as to what defines the three zones and where they are disclosed in the original specification. See claims 2, 16-17 likewise.

In claim 3, it is unclear as to where the “duct” is disclosed in the original specification and shown in the drawings. See claims 6, 13, 15 likewise

In claim 4, it is unclear as to where the “supply interrupt mechanism” is disclosed in the original specification and shown in the drawings. See claims 7, 14 likewise.

In claims 9-12, 15, it is unclear as to where it is disclosed in the original specification.

In claim 4, the language of the claim is directed to method limitation/intended use which renders the claim vague and indefinite as it is unclear as to what structural limitation applicant is attempting to recite. See claims 7, 14 likewise.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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10. Claims 1-2, 11-12, 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Bayer et al (5,262,131).

With respect to claims 1, 16, Bayer et al discloses an apparatus comprising: regenerative bed 18 containing heat exchanging matrix, the bed comprising at least three zones 32, 34, 36, 38, 40, at least one zone is a catalyst zone 36, 38 being catalytically active in reduction of nitrogen oxides (col. 3, lines 1-3), at least one zone is a hot zone (at the heating coil 42), the catalytic zone 36, 38 being spaced a distance from the hot zone 42.

With respect to claims 2, 17, Bayer et al discloses that the hot zone is a center zone and the two catalyst zones 36, 38 located on each side of the hot center zone.

With respect to claims 11-12, Bayer et al disclose valve 50 for changing gas flow direction.

Note that intended use is of no patentable moment in apparatus claims.

Instant claims 1-2, 11-12, 16-17 structurally read on the apparatus of Bayer et al.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 1-4, 6-7, 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gribbon (5,589,142) in view of Bayer et al (5,262,131).

With respect to claims 1,16, Gribbon discloses an apparatus comprising: regenerative bed 10 containing heat exchanging matrix, the bed comprising at least three zones, at least one zone is a catalyst zone 22, 24 being catalytically active in reduction of nitrogen oxides, at least one zone is a hot zone (at the burner 28), the catalytic zone 22, 24 being separated from the hot zone 28 by a distance which is considered an intermediate zone (Figs. 1-2).

The apparatus of Gribbon is substantially the same as that of the instant claims, but is silent as to whether the matrix may comprise at least three zones in which the catalyst zone is separated from a combustion zone by a space or an intermediate zone.

However, Bayer et al discloses the conventionality of providing a heat exchanging matrix including a catalyst zone 36, 38, a central combustion zone 42 and an intermediate zone 40 (next to zone 42) wherein the catalyst zone 36, 38 is separated from the combustion zone 42 by said intermediate zone 40.

It would have been obvious to one having ordinary skill in the art to alternatively select an appropriate bed for the system, such as the one taught by Bayer et al in the apparatus of Gribbon, since both types of regenerative bed are conventional in the art and no cause for patentability here.

With respect to claims 2 and 17, Bayer et al discloses two catalyst zones 36, 38, each catalyst zone is separated from the hot zone 42 by one of the intermediate zones.

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With respect to claims 3, 6, 13, 15, Gribbon discloses a duct 56, 60, 110 for supplying reducing agents to the incoming gas flow.

With respect to claims 4, 7, 14, since the claims are not structurally further limiting, the apparatus of Gribbon structurally meet the instant claims. In any event, Gribbon discloses a supply interrupt mechanism (col. 4, lines 4-14).

With respect to claims 9-12, 15, Gribbon and Bayer et al disclose valves for changing gas flow direction.

Response to Arguments

14. Applicant's arguments filed 3/17/05 & 4/11/05 have been fully considered but they are not persuasive.

Applicant argues that in Gribbon, the catalyst beds are located next to the heating zone, and there is no teaching of an intermediate zone between the hot zone and the catalytic zone. Such contention is not persuasive as it is unclear as to which defines the zones as set forth above. It appears that Gribbon teaches a combustion zone where the burner 28 is located; a catalytic zone containing the catalyst bed 22, 24; and the zone/space between the burner 28 and the catalyst bed is considered an intermediate zone (Figs. 1-2). Furthermore, Bayer et al discloses, Bayer et al discloses the conventionality of providing a heat exchanging matrix including a catalyst zone 36, 38, a central combustion zone 42 and an intermediate zone 40 (next to zone 42) wherein the catalyst zone 36, 38 is separated from the combustion zone 42 by said intermediate zone 40.

Applicant argues that Bayer et al does not teach a catalytic zone with temperatures below the oxidation temperature. Such contention is not persuasive as Bayer et al does teach a catalytic

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zone 36 in which the temperature is below the oxidation temperature, therefore the oxidation does not fully occur in said zone 36.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Houston is cited for showing state of the art.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HT
June 10, 2005

Hien Tran

**Hien Tran
Primary Examiner
Art Unit 1764**